

Software Architect

FF07 Software development and engineering · ISCO-08 2511 · CBS 0813 Systems analysts and IT consultants · seniority lead · Also known as: Solution Architect, Application Architect, Technical Architect

Determines the structure of applications and their coherence, weighs technical options and records choices and constraints for the build teams.

The software architect chooses the layout of a system, the separation between components and the constraints that build teams follow. Unlike the lead developer, this role does not steer today's code but the durability of the whole across several years and several teams. Selection leans heavily on technical depth, while the bottleneck is explaining and defending choices to non-technical decision makers and resisting the pull to start building again.

Key figures for this profile

27 skills · 3 competencies to measure · 4 knockout skills · centre of gravity: Digital, data and AI 51%, Cognitive ability and problem solving 23%, Communication and influence 9%

1 Competencies to measure

These are the behavioural and ability constructs in this profile. Each one shows which hrmforce questionnaire measures it.

Competencies to measure	Target level	hrmforce instrument	Assessment method	Behavioural anchor at target level
Abstract and figural reasoning	■■■■■ N5	Ability Scan	Cognitive ability test	Unravels problems without a known example, formulates a new ordering and shapes it so that peers can build on it.

Competencies to measure	Target level	hrmforce instrument	Assessment method	Behavioural anchor at target level
Accuracy and attention to detail Competency (50-framework): Accuracy	 N5	Big Fifty, 360 Feedback	Personality questionnaire	Sets the standards for completeness and correctness, has samples checked and addresses teams on structural sloppiness.
Working independently Competency (50-framework): Independence	 N4	Big Fifty, 15PF, Competency Check	Personality questionnaire	Determines own approach for a full work package, consults colleagues purposefully when unclear and delivers on time without reminders.

2 Full skill profile

Every skill in this profile, sorted by weight. The behavioural anchor under each skill belongs to the target level.

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Problem analysis Traces persistent organisational problems back to a few root causes and sets the analysis method that other teams will use.	■■■■■ N5	5	yes	Assessment centre	Competency Check, Ability Scan
V	Systems thinking Models the interplay between departments, market and regulation and shifts the intervention to the point with the greatest leverage.	■■■■■ N5	5	no	Work sample test	Competency Check, Work sample test
V	Software design and architecture Sets the organisation's architecture principles and decides on designs that affect multiple systems.	■■■■■ N5	5	yes	Work sample test	Work sample test, Portfolio
A	Abstract and figural reasoning Unravels problems without a known example, formulates a new ordering and shapes it so that peers can build on it.	■■■■■ N5	4	no	Cognitive ability test	Ability Scan

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Modelling and abstraction Develops models that several departments use, states their limits of validity and manages their versions and changes.	■■■■■ N5	4	no	Work sample test	Work sample test, Portfolio
G	Accuracy and attention to detail Sets the standards for completeness and correctness, has samples checked and addresses teams on structural sloppiness.	■■■■■ N5	4	no	Personality questionnaire	Big Fifty, 360 Feedback
V	Stakeholder management Maintains a network reaching governance and political bodies, connects parties with differing interests and safeguards the position of the organisation.	■■■■■ N5	4	no	Assessment centre	Competency Check, 360 Feedback
T	Version control and collaboration workflow Determines the way of working for version control and code review in the organisation and enforces it across teams.	■■■■■ N5	4	yes	Work sample test	Work sample test
V	Software testing and quality assurance Sets the organisation's test strategy and quality requirements and decides when software is not released.	■■■■■ N5	4	no	Work sample test	Work sample test, Knowledge test (client-specific)

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	API integration Sets the organisation's integration standards and interface policy and decides on exposure to external parties.	 N5	4	no	Work sample test	Work sample test
V	Written expression Independently writes texts with opening, core and closing, chooses a tone per audience and applies fixed terms consistently.	 N4	4	no	Work sample test	Work sample test, Competency Check
V	Secure development Recognises vulnerabilities in design and code, resolves them and includes security tests in own way of working.	 N4	4	yes	Work sample test	Work sample test, Knowledge test (client-specific)
V	Defining and managing requirements Elicits requirements from various stakeholders, makes them testable, prioritises together with them and manages changes traceably.	 N4	4	no	Work sample test	Work sample test, Structured interview
V	Strategic thinking Develops scenarios for the whole organisation, weighs uncertainties explicitly and sets the strategic agenda together with the executive board.	 N5	3	no	Assessment centre	Ability Scan, Competency Check

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	multidisciplinary collaboration Maps the issue with specialists from different disciplines and formulates a joint approach with a clear division of roles.	 N4	3	no	Assessment centre	360 Feedback, Competency Check
V	Working in projects Draws up project plan, schedule and risk list for a medium sized project and reports periodically to the sponsor.	 N4	3	no	Work sample test	Knowledge test (client-specific), Work sample test, Competency Check
G	Working independently Determines own approach for a full work package, consults colleagues purposefully when unclear and delivers on time without reminders.	 N4	3	no	Personality questionnaire	Big Fifty, 15PF, Competency Check
V	Professional currency and specialist literature Tracks sources and guidelines structurally, weighs their quality and adapts the own working method to new insights.	 N4	3	no	Portfolio or evidence	Portfolio, Knowledge test (client-specific)
V	Data modelling Designs a logical data model for a defined domain, normalises where needed and discusses choices with users and developers.	 N4	3	no	Work sample test	Knowledge test (client-specific), Work sample test

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Writing technical documentation Writes complete documentation for a system or process, tests it with an unfamiliar reader and maintains versions.	 N4	3	no	Work sample test	Work sample test, Portfolio
V	Using cloud platforms Independently configures cloud services for an application, arranges permissions and backups and keeps costs and usage in view.	 N4	3	no	Knowledge test	Knowledge test (client-specific)
V	Release management and deployment Draws up a rollout plan with a fallback option, aligns with stakeholders and verifies after rollout that the service works.	 N4	3	no	Work sample test	Knowledge test (client-specific), Work sample test
V	Threat and risk analysis Independently performs a threat analysis on an application, prioritises risks and advises on measures with costs and effect.	 N4	3	no	Work sample test	Knowledge test (client-specific), Work sample test
V	Prompting and task delegation to AI Splits a work task into steps, decides which step AI does and which not and improves the instruction based on outcomes.	 N4	3	no	Work sample test	Work sample test, Portfolio

T	Skill	Target level	Weight	Knockout	Assessment method	hrmforce instrument
V	Programming Independently builds a function or module from the requirement, chooses suitable structures and keeps the code readable and tested.	 N3	3	no	Work sample test	Work sample test, Knowledge test (client-specific)
V	Evaluating and verifying AI output Determines per task which checks are needed, spots incorrect or fabricated parts and accounts for the result used.	 N4	2	no	Work sample test	Work sample test, Knowledge test (client-specific)
V	giving feedback Discusses unwanted behaviour with the person concerned, describes fact, effect and request, and agrees on a follow-up.	 N4	1	no	Assessment centre	360 Feedback, Communication Styles

3 Levels per seniority

The same profile with the job family seniority adjustment applied. Target levels are clamped to 1 to 5.

Skill	senior	lead
Problem analysis	N5	N5
Systems thinking	N5	N5
Software design and architecture	N5	N5
Abstract and figural reasoning	N5	N5
Modelling and abstraction	N5	N5
Accuracy and attention to detail	N5	N5
Stakeholder management	N5	N5
Version control and collaboration workflow	N5	N5
Software testing and quality assurance	N5	N5
API integration	N5	N5
Written expression	N4	N4
Secure development	N4	N4
Defining and managing requirements	N4	N4
Strategic thinking	N5	N5
multidisciplinary collaboration	N4	N4
Working in projects	N4	N4
Working independently	N4	N4
Professional currency and specialist literature	N4	N4
Data modelling	N4	N4
Writing technical documentation	N4	N4
Using cloud platforms	N4	N4
Release management and deployment	N4	N4
Threat and risk analysis	N4	N4

Skill	senior	lead
Prompting and task delegation to AI	N4	N4
Programming	N3	N3
Evaluating and verifying AI output	N4	N4
giving feedback	N4	N4

4 The proficiency scale

Level	Label	Autonomy	Complexity	Scope	Depth of knowledge
N1	Guided	works under supervision and follows instruction	routine, one variable at a time	own task	basic understanding of terminology
N2	Applying	works independently within set frameworks	familiar situations with limited variation	own role	working knowledge, applies standard approach
N3	Proficient	sets own approach and seeks input proactively	several variables, some ambiguity	own team or process	thorough knowledge, weighs alternatives
N4	Advanced	directs others and decides on the approach	complex, with conflicting interests	several teams or a department	in-depth knowledge, advises others
N5	Leading	sets the standard and the policy	strategic, under high uncertainty	organisation, value chain or profession	authority, advances the profession

5 Behavioural anchors per skill

Anchors sit at N1, N3 and N5. N2 and N4 are deliberately not anchored: raters interpolate between them, following the O*NET convention.

Skill	N1	N3	N5
Problem analysis Breaks a problem into parts, separates causes from effects and states which information is needed to move forward.	States precisely what deviates in a malfunction and which data are missing, and puts this to the supervisor.	Splits a recurring complaint into possible causes, tests these with own data and names the most likely cause.	Traces persistent organisational problems back to a few root causes and sets the analysis method that other teams will use.
Systems thinking Describes how parts of a process or organisation influence each other, including feedback, delay and unintended effects.	Names who or what depends on the own task earlier and later in the process.	Maps the chain around a bottleneck, points out the feedback loop and predicts the effect of an intervention.	Models the interplay between departments, market and regulation and shifts the intervention to the point with the greatest leverage.

Skill	N1	N3	N5
Software design and architecture Designs the structure of an application or interface, distributes functionality across components and weighs choices on maintainability, performance and security.	Elaborates a supplied design into components and asks questions when the design turns out to be incomplete.	Produces a design for a defined application, records the main choices and alternatives and reviews it with colleagues.	Sets the organisation's architecture principles and decides on designs that affect multiple systems.
Abstract and figural reasoning Recognises rules and patterns in figures, series or symbols without prior knowledge and applies those rules to new, unfamiliar tasks.	Finds the next step in a short series of figures and explains which rule was used for it.	Discovers the underlying rule in unfamiliar material with several changing features and uses it to explain deviations.	Unravels problems without a known example, formulates a new ordering and shapes it so that peers can build on it.
Modelling and abstraction Turns a real situation into a simplified representation, such as a diagram, formula or flow chart, with explicit assumptions and limits.	Fills in an existing diagram or template and names which part of the work belongs where.	Builds a diagram of a work process independently, names the assumptions and tests the model against real cases.	Develops models that several departments use, states their limits of validity and manages their versions and changes.
Accuracy and attention to detail Works carefully, checks own work for errors and keeps to agreements about completeness and correctness of data.	Goes through the own work with a checklist and repairs errors found before the work is passed on.	Builds check moments into the own process, keeps track of errors and prevents repetition by adjusting the method.	Sets the standards for completeness and correctness, has samples checked and addresses teams on structural sloppiness.
Stakeholder management Mapping who has an interest in an initiative and maintaining contact with those parties so that decisions keep their support.	Maintains a list of those involved and informs them about progress according to the agreed rhythm.	Assesses influence and interest per party, chooses a fitting form of contact and discusses conflicting wishes before a decision is taken.	Maintains a network reaching governance and political bodies, connects parties with differing interests and safeguards the position of the organisation.

Skill	N1	N3	N5
Version control and collaboration workflow Works with a version control system, uses branches and merge requests and keeps the change history traceable for the team.	Commits changes with a clear description in the designated branch according to the team agreement.	Manages branches and merges independently, resolves conflicts and reviews colleagues' changes on substance.	Determines the way of working for version control and code review in the organisation and enforces it across teams.
Software testing and quality assurance Devises and runs tests on functionality and edge cases, records findings reproducibly and judges whether a solution can be released.	Works through a test script step by step and records every deviation with a screenshot and the steps taken.	Designs test cases including edge cases, automates repeatable tests and advises on release based on the findings.	Sets the organisation's test strategy and quality requirements and decides when software is not released.
API integration Connects systems through programming interfaces, reads their documentation, handles errors and limits and tests the interface end to end.	Executes a prepared interface call following documentation and reports recurring error codes to the developer.	Independently builds an interface between two systems, handles errors and documents the data exchange for support staff.	Sets the organisation's integration standards and interface policy and decides on exposure to external parties.
Written expression Putting thoughts into correct and readable text with a logical paragraph structure, fitting tone and word choice suited to the reader.	Writes short messages and reports free of language errors after using a checking tool and a review round by a colleague.	Independently writes texts with opening, core and closing, chooses a tone per audience and applies fixed terms consistently.	Draws up the writing guide and house style for the organisation, approves publications on content and develops the writing skill of teams.
Secure development Builds software in which input is validated, secrets are protected and known vulnerabilities are prevented, and verifies this with targeted tests.	Follows the secure coding guideline for own changes and asks when a guideline is unclear.	Recognises vulnerabilities in design and code, resolves them and includes security tests in own way of working.	Sets secure development requirements in the organisation and judges whether solutions meet them before release.

Skill	N1	N3	N5
Defining and managing requirements Elicits requirements from users and clients, records them testably, tracks changes and checks whether the result meets them.	Records user needs in the agreed format and probes until every need is concrete.	Elicits requirements from various stakeholders, makes them testable, prioritises together with them and manages changes traceably.	Determines the requirements practice in the organisation and decides which requirements prevail when interests conflict.
Strategic thinking Analysing developments in the environment, market and technology and deriving strategic choices and alternatives from them for the longer term of an organisation or unit.	Collects data on market and competitors on request and summarises the main developments for the manager.	Places figures, customer signals and trends side by side and names two or three strategic options with their consequences.	Develops scenarios for the whole organisation, weighs uncertainties explicitly and sets the strategic agenda together with the executive board.
multidisciplinary collaboration Working with people from other disciplines by learning their language and methods and establishing shared starting points for the joint work.	Asks a colleague from another discipline what technical terms mean and summarises the answer back to them.	Maps the issue with specialists from different disciplines and formulates a joint approach with a clear division of roles.	Sets up lasting forms of collaboration between disciplines and settles conflicts between professional standards on the basis of the organisational interest.
Working in projects Delivering a defined result through phases, milestones and role division, controlling time, money, quality and risks and reporting at fixed moments.	Delivers assigned project tasks on time and updates the project plan with own progress.	Draws up project plan, schedule and risk list for a medium sized project and reports periodically to the sponsor.	Establishes the project approach of the organisation, decides on starting and stopping programmes and safeguards coherence between projects.
Working independently Carries out assigned work without ongoing direction, makes own choices within agreed boundaries and reports when consultation or a decision by others is needed.	Completes tasks as instructed and raises every deviation with the supervisor before continuing with the remaining work.	Determines own approach for a full work package, consults colleagues purposefully when unclear and delivers on time without reminders.	Designs the working method that lets teams operate autonomously and defines across the organisation which decisions are escalated and which are not.

Skill	N1	N3	N5
Professional currency and specialist literature Follows developments in the own profession through literature, guidelines and networks and works relevant new insights into own practice.	Reads the professional information received and names which part matters for the own work.	Tracks sources and guidelines structurally, weighs their quality and adapts the own working method to new insights.	Assesses the state of the field, weighs conflicting research and determines which guidelines the organisation will follow from now on.
Data modelling Describes data and its relationships in a model with entities, attributes and keys that matches the work process.	Extends an existing data model with new fields following the applicable naming conventions and has the work reviewed.	Designs a logical data model for a defined domain, normalises where needed and discusses choices with users and developers.	Sets the organisation's modelling standards and core data model and decides on deviations from them.
Writing technical documentation Writes manuals, support documentation and decision records that a reader without prior knowledge can follow step by step and that stay current.	Completes a documentation template with the steps of a task and has the text checked by a colleague.	Writes complete documentation for a system or process, tests it with an unfamiliar reader and maintains versions.	Sets the organisation's documentation standard and ensures documentation is part of every delivery.
Using cloud platforms Sets up and manages services in a cloud environment, arranges permissions and costs and chooses between available service types based on requirements.	Uses existing cloud services as instructed and reports unusual behaviour or unexpected costs to the administrator.	Independently configures cloud services for an application, arranges permissions and backups and keeps costs and usage in view.	Determines the organisation's cloud strategy and decides which workloads are placed where.
Release management and deployment Plans and carries out the rollout of new versions, checks operation before and after and ensures a rollback stays possible.	Executes the steps of a rollout plan and reports immediately when a step does not give the expected result.	Draws up a rollout plan with a fallback option, aligns with stakeholders and verifies after rollout that the service works.	Sets the organisation's release policy, decides on rollout windows and structurally improves the lead time of changes.

Skill	N1	N3	N5
Threat and risk analysis Maps threats, weaknesses and consequences for a system or process, weighs likelihood against impact and names appropriate measures.	Completes a risk inventory using a given list of threats and submits the outcome to the specialist.	Independently performs a threat analysis on an application, prioritises risks and advises on measures with costs and effect.	Determines the organisation's risk appetite and analysis method and accounts for the security risk picture to the board.
Prompting and task delegation to AI Divides work between person and AI system, formulates task, context and required output format and adjusts based on the output.	Gives an AI tool a single task with a clear question and required format and uses the result after checking it.	Splits a work task into steps, decides which step AI does and which not and improves the instruction based on outcomes.	Develops organisation wide practices for dividing tasks with AI and trains others in effective and responsible instruction giving.
Programming Writes, reads and improves working program code in at least one language, splits a problem into steps and tests own solution.	Adjusts existing code as directed, runs it and reports error messages that cannot be resolved alone.	Independently builds a function or module from the requirement, chooses suitable structures and keeps the code readable and tested.	Sets programming standards and language choices for the organisation and reviews others' code for quality and maintainability.
Evaluating and verifying AI output Checks AI output for accuracy, completeness and usefulness, verifies claims against sources and decides whether the output is used.	Checks facts and figures from AI output against a reliable source before passing the result on.	Determines per task which checks are needed, spots incorrect or fabricated parts and accounts for the result used.	Designs the organisation's verification policy and determines for which applications human review remains mandatory.
giving feedback Naming concrete behaviour and its effect to another person, with a request or proposal, at a moment and in a way that keeps dialogue possible.	States after a shared task what a colleague did well and gives a concrete example with it.	Discusses unwanted behaviour with the person concerned, describes fact, effect and request, and agrees on a follow-up.	Introduces feedback as a working method across several teams, trains managers in it and monitors whether unwanted behaviour is raised earlier.

6 Assessment methods and validity

The validities are the corrected meta-analytic estimates from Sackett, Zhang, Berry and Lievens (2022) in the Journal of Applied Psychology, which replace the older Schmidt and Hunter (1998) figures. The spread matters as much as the mean: with a high SD, validity varies strongly by context.

Assessment method	rho	SD	What it is
Assessment centre	0.29	0.09	Multiple exercises, multiple assessors, dimension-wise scoring.
Work sample test	0.33	0.09	The candidate performs a representative work sample under standardised conditions.
Cognitive ability test	0.41	0.14	Standardised test of verbal, numerical or abstract reasoning.
Personality questionnaire	0.40	0.15	Self-report of behavioural preferences. At hrnforce the Big Fifty and the 15PF.
Portfolio or evidence	-	-	A collection of prior work or results, assessed against fixed criteria.
Knowledge test	0.40	0.13	Test of declarative job knowledge, usually assembled per client.

7 Assessment instruments for this job

hrnforce instrument	Skills	What it measures
Work sample test	17	Representative work sample under standardized conditions
Knowledge test (client-specific)	10	Professional knowledge test, customized for each client
Competency Check	8	Behavioral-Level Competency Assessment
Portfolio	5	Evaluation of prior work against fixed criteria
360 Feedback	4	Multiple assessments based on behavioral anchors
Ability Scan	3	Aptitude Test: Verbal, Numerical, and Abstract Reasoning Skills
Big Fifty	2	Personality questionnaire, 150 items, 25 factors
Structured interview	1	Behavioral interview with a fixed structure
15PF	1	Personality Profile, a shorter alternative to the Big Fifty
Communication Styles	1	Preferred communication style

8 How to use this profile

1. Agree the profile with the hiring manager before the first candidate is measured. Weights shifted afterwards make the outcome indefensible.
2. Choose the assessment method per skill from the Assessment method column. Combine at most three methods per candidate.
3. Calibrate the assessors in a two-hour session using the anchors in chapter 5. Anchors without rater training deliver little.
4. Fill in the match calculator and discuss the gaps in the development conversation. Type A and type G are selection criteria, not one-quarter development goals.

Source: hrmforce Skills Framework 2.0, version 2.0.0, built 2026-09-08. Crosswalks to ESCO v1.2.1, O*NET 31.0, Lightcast Open Skills, SFIA 9, DigComp 3.0, EntreComp, LifeComp, GreenComp, AILit, WEF Future of Jobs 2025, ISCO-08 and the Dutch CBS occupational classification BRC 2014 edition 2025. This profile is a starting point, not a standard: align it with your own organisation before selecting on it.